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The Economic Health of the Airline Industry and Its Impact on National Security

Colonel
Glynn W. Cavin, Jr.
U.S. Air Force

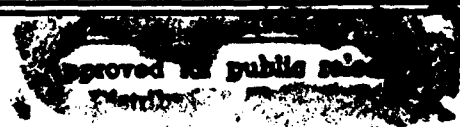
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ABSTRACT

The massive airlift of U.S. troops to the Persian Gulf War was possible because the United States has a strong airline industry. However, fierce competition has put the long-term health of that industry at risk. The surface portion of the transportation industry is encouraging intermodalism as the only way to survive in an increasingly competitive world, but true intermodal surface to air movement has yet to be widely developed. Airlines still do not consider routine airlift of International Standards Organization (ISO) containers profitable, using today's aircraft. They need a new airplane that will make a leap forward in lifting capability without a commensurate leap in expense.

In this paper I propose a dual track solution to the problems of the airlines. First, the Government must work with the airlines and aerospace industry to create a more favorable economic environment for them. Second, the Government must sponsor development of an aircraft that will make long-haul airlift of ISO containers economically attractive, and militarily useful. Simply put: Our nation depends on the best airline industry in the world to make our National Military Strategy of power projection viable!

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ABSTRACT

The massive airlift of U.S. troops to the Persian Gulf War was possible because the United States has a strong airline industry. However, fierce competition has put the long-term health of that industry at risk. The surface portion of the transportation industry is encouraging intermodalism as the only way to survive in an increasingly competitive world, but true intermodal surface to air movement has yet to be widely developed. Airlines still do not consider routine airlift of International Standards Organization (ISO) containers profitable, using today's aircraft. They need a new airplane that will make a leap forward in lifting capability without a commensurate leap in expense.

In this paper I propose a dual track solution to the problems of the airlines. First, the Government must work with the airlines and aerospace industry to create a more favorable economic environment for them. Second, the Government must sponsor development of an aircraft that will make long-haul airlift of ISO containers economically attractive, and militarily useful. Simply put: Our nation depends on the best airline industry in the world to make our National Military Strategy of power projection viable!

CHAPTER ONE INTRODUCTION

The massive airlift of U.S. troops to the Persian Gulf War was possible because the United States has the best civilian airline fleet in the world. However, fierce competition has put the long-term health of many of the U.S. airlines at risk.

So why does this matter? The answer is that a healthy airline industry is key to our National Military Strategy of projecting power anywhere in the world. If we can't transport the troops, we can't project military power. That will limit the options of our leaders to influence world events thus affecting our national security.

In this paper, the reader will learn about the history and unique economics of the airline industry. Then we will explore two issues of particular concern to the military: intermodalism (movement in more than one type of transportation) and the Civil Reserve Air Fleet (CRAF). I will conclude the paper with my recommendations.

History. Chapter Two will give the reader a better understanding of the history of this complex industry, its composition, and how it operates.

Economics. Past and future economic trends will be the subject of Chapter Three. I will explore the market forces that fostered growth, then decline, in the industry.

Intermodalism. The surface portion of the transportation industry is encouraging transfer of cargo from one mode of transportation to another (intermodalism); i.e. truck to train. However, except for the small package express carriers (such as Federal Express), the airlines have not pursued intermodalism to any great extent. Is there a potential market for the airlines in this area? We will explore this more fully in Chapter Four.

CRAF. In chapter five I will describe the Civil Reserve Air Fleet. The first-ever activation of CRAF, during the Gulf war, was hailed as a resounding success, but was it as successful as many thought? If the CRAF program is to remain viable, it must adapt to changing times and a changing airline industry.

The Future. Chapter Six will be devoted to recommendations for Federal action, based upon the evidence presented in the preceding chapters.

Despite several years of economic hard times which continue today, some experts believe the outlook is bright for the U.S. airline industry. However, the industry is not monolithic. It is made up of diverse segments, each with its own needs. The next chapter will give the reader a better understanding of this complex industry.

CHAPTER TWO THE U.S. AIRLINES GROW FROM NOVELTY TO POWERHOUSE

In less than a century flying has gone from a novelty, to a rich man's luxury, to a common and preferred method of travel for the businessman and tourist. Revenue Passenger Miles (RPMs) increased 100 fold from 1955 to 1992 (see Appendix A, Chart 1).¹ Airlift is not a product in and of itself, but is a part of a variety of other products or services.² In this chapter I will discuss the history (regulation and deregulation), structure, and operation of the airline industry.

HISTORY

The earliest commercial use of scheduled air service was to move mail. "In 1917, the U.S. Post Office . . . appropriated \$100,000 for an experimental air service."³ Until technology and war advanced airlift, passenger travel by air was not considered a serious means of travel. The public preferred ocean liners and trains, which provided luxurious and dependable transportation. World War II fostered technological improvements including speed, enclosed cabins (providing warmth, pressurization, and reduced noise), and safety features. It also brought an explosion of airfields, a well-developed air traffic control system, excess airplanes at the end of the war, and experienced aircrews.

Scheduled commercial cargo airlift can be traced back to September 1, 1927 when National Air Transport (predecessor of

United Airlines) carried the first coast-to-coast air express shipment.⁴ After the war, scheduled passenger carriers dominated the freight business. Lightweight, breakbulk cargo (like mail) was moved on a "space available" basis in the baggage compartment of early commercial aircraft. However, as the market grew and customers wanted dependable service, all-cargo carriers began to appear on the scene. But, the pendulum swung back to the passenger carriers when they incorporated efficient wide-body aircraft into their fleets. These aircraft offered ample lifting capability to haul passengers, baggage, and freight. The all-cargo carriers' fleets of older, inefficient, narrow-body aircraft put them at an economic disadvantage, especially during the fuel crisis of 1979.

But the air cargo market continued to grow for three reasons. American consumption trends went from basic necessities to high value goods that needed timely delivery. Second, managers began to use productivity improvements, such as "Just In Time" inventory control. Third, both passenger and cargo carriers could offer plenty of capacity. As commercial air transportation developed, the need for safety and economic regulation became evident.

Regulation:

Early Regulation. Control of the airspace aircraft flew through was the first thing to be regulated. By the end of World War I, airspace sovereignty was accepted as a legitimate concept. This led to many inconsistent and restrictive bilateral

agreements between nations concerning entry and exit into their airspace.⁵ Uniform regulation of air traffic, safety, and economic matters (such as fares and reimbursement) was needed.

Modern Regulation. Thus in 1944, 52 nations met in Chicago to discuss a multinational agreement to control international air travel, transit of aircraft, and carriage of passengers. The U.S. proposed unrestricted access by any carrier to any airport, but the British feared U.S. domination.⁶ The Canadians resolved the impasse, drafting "five freedoms" in the "Convention on International Civil Aviation"⁷ (see Appendix A, Chart 2).

Economic Regulation. However, domestic economic regulation actually came first with the passage of the Civil Aeronautics Act of 1938. It was introduced "because the unregulated competition which had prevailed up to then had led to chaotic economic conditions, little security for investors and low safety margins."⁸ The goal was to insure a stable industry by regulating such things as fares, entry or exit from the industry, routes, and the types of service the airlines offered. But, by the mid-1970s, there was growing pressure to do away with domestic regulation.

Deregulation:

In 1974, Senator Kennedy chaired Senate committee hearings on the need for reform of the Civil Aeronautics Board (CAB). The committee found four reasons for deregulation:

- a. *Defacto exclusion of new airlines from long-haul major route markets.*
- b. *Protection of the relatively inefficient carriers.*

c. *Unduly high labor costs and unduly high-cost type of service.*

d. *Lack of emphasis on price competition and on variations in the price-to-quality mix in response to consumer preference.*⁹

A deregulation bill was signed into law on October 24, 1978.¹⁰ The anticipated benefits of deregulation included:

* Increased Competition

* Improved Efficiency

* Lower Fares

* Broader Consumer Choices

* Reasonable Profits¹¹

Whether the overall effect of deregulation has been good or bad is still being debated.¹² In any event, the easy times were over, now the airlines had to learn to compete.

Marketing the Product. Airlines worked hard and spent money to differentiate their products from others.¹³ The most common and destructive tool has been the prolific use of discounted tickets (fare wars). After deregulation, all sorts of reduced fare schemes were invented to lure passengers to the airlines. Special programs included: advance booking discounts, off-season markdowns, and group reductions. As an example, one major airline recently began offering one free domestic round trip with the purchase of an international round trip. The fare wars have been the primary (though not only) cause of the current financial problems of the airlines.

Airlines also use Frequent Flyer Plans, Travel Agent Commission Overrides (TACOs), and Computer Reservation Systems (CRSs) to capture customer/agent loyalty. TACOs are commissions

awarded to travel agents based on the number of tickets they book with an airline. Airlines stopped openly biasing their computer ticket sales and TACOs towards the "owning" airline in 1984, under the threat of government action. However, according to government studies, the computer systems still favor the owners for a variety of legitimate reasons. That prejudice is worth significant income because CRS owners can garner up to 15% more revenue from an agent than non-owners.¹⁴

Hub and Spoke Systems. Another result of deregulation was the growth of hub and spoke systems. In this concept the route system of an airline is like a wagon wheel. Secondary routes feed passengers into a central hub for consolidation, before subsequent movement to destination over another spoke. A single airline will usually dominate at a hub, striving for exclusive movement over its system. "This airport dominance ensures a degree of protection from competition and control over price that was not foreseen prior to deregulation"¹⁵ Interestingly, many airlines (especially regional airlines) are now rethinking this concept and are avoiding the high overhead cost of operations at hubs.¹⁶

Slot Times. One positive outcome of deregulation was that more people elected air travel, resulting in ever more crowded skies (from 1977 to 1990 domestic travel rose 120 percent).¹⁷ This was compounded by safety concerns after the Professional Air Traffic Controller Organization strike. The answer came in the form of assignment of "slot times" to airlines. Commercial

aircraft would be given specific takeoff and arrival times at airports. Airlines consider these slot times valuable because ticket sales depend on arriving and departing when the customer wants. Thus, they treat the slot times as transferable property. Since hubs are the busiest airfields, their slot times are most valuable. For example, slot times at Washington National and O'Hare recently sold for \$.5 million to \$1.2 million.¹⁸ The structure of the airline industry is a direct reflection of the effects of regulation and deregulation.

STRUCTURE OF THE INDUSTRY

Growth of the industry accelerated after deregulation from 30 passenger airlines in 1977 to 123 in 1984, then declined to 11 major carriers by 1991¹⁹ (see Appendix A, Chart 3). Today there are a total of 213 certificated carriers of all kinds (passenger, cargo, charter). Scheduled passenger service is provided by 178 carriers, 9 carriers provide scheduled cargo service and the remaining 26 provide charter passenger or cargo service.²⁰ Almost half of the revenue is earned by four of the major airlines: American, United, Delta, and Northwest Airlines.²¹ Three all-cargo carriers dominate the US industry: Federal Express (26% market share), Emery Worldwide, and United Parcel Service.²² All-cargo service can be further segmented into two distinct markets -- the time sensitive small package cargo and the heavier (over 70 pounds) bulk shipment market.²³ How does this large industry, specifically the cargo portion, operate?

INDUSTRY OPERATION

Cargo Distinctions. The "commodity" of moving passengers is relatively homogeneous. Cargo on the other hand, can be categorized by type, weight, and urgency of need. Air cargo "types" include high value or perishable cargo. The value of the cargo is usually high, compared to its weight or urgency of need (legal documents, for example). Urgency can be subdivided into various time elements such as emergency, overnight or routine air.

The Value of Airlift. Transportation cost is a high percent of the total cost of any product.²⁴ Nawal K. Taneja (author of The U.S. Airfreight Industry) has developed the Total Distribution Cost concept, which considers all costs relating to the distribution of the product, including inventory and transportation costs.²⁵ His theory is that rapid movement of air shipments can provide "savings" over the cost of a large inventory. For example, one transportation company estimated that warehousing of overseas inventories can add as much as twenty-five percent to the cost of the product.²⁶

Air transportation has matured from barnstorming mail carriers to a well-developed system for swiftly moving passengers and cargo. The U.S. airlines have led the way, becoming the "World Champions" of airlift. But now they're in trouble. The next chapter will examine why "the Champions" are on the ropes, and if they will go down for the count.

CHAPTER THREE WILL THE GOOD TIMES RETURN?

You've probably seen a headline like this:

"MASSIVE AIRLINE LOSSES FORCE DRACONIAN CUTS"²⁷

Most headlines of this type are about the passenger carriers. Although the all-cargo carriers have fared better, they haven't escaped the hard times. How bad have the losses been, and what brought them about? What does the future look like for the airlines, and are there solutions to the problems?

RED INK EVERYWHERE

Indeed the last few years have been bad: "Since 1989, the airlines have lost a staggering \$8 billion to \$9 billion. That's more than the profits the airlines had made in all the preceding 44 years, according to industry figures."²⁸ Federal Express has had its share of red ink, losing \$113.8 million in 1992, while a competitor (Airborne Express) is projecting a \$4 million to \$5 million loss.²⁹

Several things have contributed to these losses, including: overcapacity, operating costs (fuel and labor), and competition from bankrupt airlines.

Overcapacity. The airlines simply had too many seats when the recession hit. "In the last three years, said W. Thomas Lagow, executive vice president for marketing at USAir, 'the Big

Three carriers...took delivery of a new airplane every other day -- 500 new aircraft. This amounted to an increase in capacity on their part of 35 percent in three years -- years that were characterized by economic stagnation."³⁰ Prices followed the law of supply and demand - when supply went up and demand went down (or was stagnant), prices had to go lower.

Unlike other industries, airlines have long lead times on their "inventory" (airplanes) and they can't easily reduce the inventory when demand drops off. Robert Crandall of American Airlines said "There is nobody to whom I can sell airplanes . . . thus, once I own the airplane, I am better off to fly it rather than leave it on the ground."³¹ This philosophy was the primary engine for the self-destructive fare wars designed to fill up seats, even at very low prices. Any marginal contribution of the fares towards operating costs would help reduce losses. Unfortunately, the costs to operate the airlines were rising also.

Operating Costs. The primary contributors in this category are fuel, labor, and airport costs:

Fuel. The price of jet fuel soared after the invasion of Kuwait, rising from sixty-five cents a gallon (July 1990) to \$1.40 a gallon (October 1990), but has remained fairly steady since then.³²

Labor. Like other industries, airline labor costs have risen (eleven percent in 1990), but they have not been offset by a corresponding gain in productivity.³³ The airlines compounded

the problem by allowing salary increases to exceed the growth in the cost of living. "In the past year, despite huge industry losses, American, Delta, and United all gave their pilots big raises to avoid strikes."³⁴ Now some airlines are trying to combat the costs by laying off personnel and reducing management salaries (United, Northwest and Alaska airlines recently furloughed about 4,000 employees combined, and United reduced salaries of U.S. managers by 5%).³⁵ Time will tell if these actions have been sufficient.

Airport Costs. Airlines must pay a variety of costs every time a flight lands at an airport. These include landing fees, gate rentals, ground handling equipment charges, office space, etc.. "Between 1982 and 1991, these costs climbed 76%. Consumer prices rose 42% in the same period."³⁶

Competition. Finally, many airlines believe they have a distinct disadvantage when they have to compete with airlines operating under Chapter 11 bankruptcy rules. William Nishanen of the Washington Post said:

"In a capital-intensive industry, it is difficult for the best managed companies to earn a profit when some of their competitors are allowed to operate indefinitely without paying their creditors. More important, the pattern of indefinite forbearance by the bankruptcy courts increases the cost of capital to all firms."³⁷

FORECAST

Are the airlines doomed? What do the experts say about the near future of the industry? Mr. Jackman of the Air Transport Association says: "The US airline industry will get back in the

black in 1992, making a projected \$300 million profit. That's a pittance in an industry with \$80 billion in revenue, but it is a profit."³⁸ The International Air Transport Association forecasted growth in US passenger traffic by 8.3 percent in 1992 (according to the US Industrial Outlook it was actually 4.8 percent), 6.8 percent in 1993, and 6.6 percent in 1994.³⁹ Air freight forecasts are up also. "According to Boeing's annual cargo forecast, worldwide air cargo volumes will more than double by (the year) 2000 to 179 billion revenue ton kilometers, up from 74 billion today. Hot spots for cargo growth span the Asia-Pacific and Latin American regions."⁴⁰ The North American Free Trade Agreement will be a boon for north-south commerce.

These are significant problems, and many smart folks have ideas on how to fix them.

SOLUTIONS

Solutions won't be easy. Here are some of the suggestions heard so far:

The Clinton administration has proposed:

- * Rolling back the 10% excise tax on tickets, which the airlines regard as an administrative burden and an extra expense to passengers that tends to depress travel.
- * Providing investment tax credits, and other investment incentives to relieve financial pressures.⁴¹

The Air Transport Association recommends:

- Change in the Internal Revenue Code to provide for

amortization of purchased intangibles, such as airline gate leases, and takeoff and landing slots.

- Modification of the Alternative Minimum Tax that has penalized airlines and other capital intensive industries.
- Reduction of workplace rules that the carriers believe increase costs and limit productivity.⁴²

Other recommendations have included "re" regulating the industry.

Morten Beyer, a long-time deregulation foe, recommended:

- # Establishing an independent regulatory board outside the Department of Transportation as a watchdog of industry practices.

- # Authorizing a routes and rates conference to establish fair minimum and maximum fares for each class of service based on costs and distance that are uniformly applied.

- # Creation of a three-tier rate structure for all carriers with uniform and reasonable discounts.

- # Protection for newly established airlines from predatory operations by established carriers.

- # A strong Investment Tax Credit Program for new aircraft acquired by all U.S. carriers.⁴³

Three things have contributed to the severe losses of the airlines: too many seats, high operating costs, and competition from bankrupt airlines. Experts predict a better future in the near term, but a long-term answer is needed. The best solution may be some combination of the ideas seen in this chapter.

CHAPTER FOUR INTERMODALISM - BACK TO THE FUTURE

Intermodalism has been around since the first mail bag went from a truck to a biplane. In this chapter, I'll help the reader understand what it is, who's interested, and why it is important.

WHAT IS INTERMODALISM?

The Department of Transportation (DOT) states that intermodalism represents Connections: the convenient, rapid, efficient, and safe transfer of people or goods from one mode to another during a single journey.⁴⁴

In the cargo business, the term has come to be associated with movement of cargo in containers that are compatible with truck, rail, or air movement. The military has actually been in this business for many years using specialized aluminum cargo pallets (system 463L), parts containers (including the unsung "Conex"), and more recently, International Standards Organization (ISO) 20 and 40 foot containers.

WHO USES INTERMODALISM?

Private Industry. The ISO containers have become so commonplace in the commercial world that the majority of the world's oceangoing cargo is carried in ISO containers. The U.S. Government has also recognized intermodalism as key to efficient distribution of people and goods. In a speech to the Washington

Chapter of the National Defense Transportation Association, Mr. Robert Martinez, at the time the Associate Deputy Secretary of Transportation, said:

"In three and a half years, the Bush Administration has provided many tools to strengthen the link between transportation and the economy. The Intermodal Surface Transportation Efficiency Act of 1991 -- ISTEA for short -- is probably the most important." ⁴⁵

Local governments can use funds from this program to enhance intermodal facilities at passenger and cargo interchange points. The surface portion of the industry is encouraging intermodalism as the only way to survive in an increasingly competitive world, but true intermodal surface to air movement has yet to be widely developed.

Surface to Air Intermodalism. There have been no major efforts in this area since "Project INTACT" in 1975. This test "...was the first practical demonstration of complete intermodal compatibility between air and surface freight transportation."⁴⁶ INTACT (Intermodal Air Cargo Test) was a cooperative undertaking of the Air Force, DOT, Lockheed-Georgia, and the shipping industry. A C-5 was used to haul highway vans and ISO containers from Oakland, California to Nashville, Tennessee. The results of the test showed two things. First, intermodal heavy cargo airlift was best suited to international distances. Second, the optimum aircraft should have a payload of 250,000 pounds.⁴⁷ Under these two conditions, airlift of intermodal cargo would be economically feasible, according to the report.

Results Still Valid. The analysis of the test data and conclusions were made when fuel, aircraft, and the support structure were cheaper. Even so, the development of the procedures and equipment requirements remains valid. An updated economic analysis might still show favorable results for an aircraft that is specifically designed to carry ISO containers.

Then why have the airlines failed to develop this capability? In fact, Boeing did develop plans for a freighter version of the B-747, specifically designed to carry 20-foot containers. However, the design was rejected because aerodynamic considerations would not allow the designers to enlarge the nose opening of the aircraft enough to accommodate the ISO containers.⁴⁸ Finally, as with all aircraft, weight is a major consideration and the high tare (empty) weight of ISO containers extracts a significant payload penalty. For this reason, airlines still do not consider routine airlift of ISO containers profitable, using today's aircraft. They need a new airplane that will make a leap forward in lifting capability without a commensurate leap in expense. I believe that goal is achievable.

Military Intermodalism. The military has put renewed emphasis on containerism and intermodalism. The Joint Staff has designated United States Transportation Command (USTRANSCOM) as the lead agency for intermodal action. Now, USTRANSCOM is working closely with the Service staffs to develop the Joint Intermodal Action Plan. This plan will outline the "strategy for ensuring the Defense Transportation System can respond to the

strategic intermodal requirements of the Department of Defense."⁴⁹ As General Starling (the Deputy Commander of USTRANSCOM) said, the goal is to "develop and maintain a strategic mobility capability which can project decisive combat power where and when needed."⁵⁰

INTERMODALISM IMPORTANT TO THE MILITARY

The bottom line for the military is, would an aircraft specifically designed to haul ISO containers be useful? I believe the answer is "yes." There is a requirement for a fleet of "container" capable aircraft that could move a large number of ISO containers anywhere in the world, rapidly. Does the commercial world need such an airplane? Again, the answer is yes. Not only is international movement of containers growing, but their urgent delivery is becoming more important. This represents an excellent marketing opportunity for the airlines, if they have an inexpensive, massive container aircraft. In order to compete with the surface shippers, they must offer service that's not substantially more expensive than ships, yet almost as fast as normal air shipment. As I'll show in Chapter Six, the technology exists, and we have the need. All we require now is to bring the potential into focus.

Who's better equipped to be the catalyst for that project than USTRANSCOM and its component, Air Mobility Command? They have a long history of civil/military cooperation in the Civil Reserve Air Fleet, the subject of the next chapter.

**CHAPTER FIVE
THE CIVIL RESERVE AIR FLEET (CRAF)
A PARTNERSHIP THAT WORKS!**

The CRAF program is a unique example of civil-military cooperation. I want to acquaint the reader with this program, its origin, its heroic actions in support of DESERT SHIELD/DESERT STORM, and the concerns of the civilian and military principals of CRAF.

HISTORY OF CRAF

The history of the civil-military partnership had its origin in World War II. Although the U.S. airlines were still relatively young and small, they provided experienced personnel for the Army's Air Transport Command. They also provided aircraft: "On May 15, 1942, the Army requisitioned almost half the airline fleet, leaving the carriers with only 176 planes, compared to 354 six months earlier."⁵¹

As mentioned in Chapter Two, the airline system boomed after the war. In the post war period military planners recognized the potential airlift capacity that the airlines then possessed, in terms of human and equipment assets. This capability would prove essential in any major war. The executives that owned and operated the airlines also recognized this potential. They were eager to help craft a "manageable" program, rather than face future requisitions or nationalizations. Thus in 1952, President

Harry Truman directed that the Civil Reserve Air Fleet program be established. Today, CRAF is actually a subset of a much larger program called the War Air Service Program (WASP).

War Air Service Program. WASP is administered by the DOT and is authorized under Executive Order 11490. WASP is essentially a nationalization of the entire airlift system (airlines, airways, and airports). In a national emergency, DOT would allocate aircraft to various government agencies such as DOD or the Department of Energy. However, key differences between WASP and CRAF are that CRAF is a pre-allocation of airlift to DOD, and it can be activated independent of WASP.

Civil Reserve Air Fleet. CRAF has remained essentially unchanged since its beginning. Here's how the program works:

Basis: The program is founded upon the idea of cooperation. The Air Mobility Command (AMC) will offer peacetime business only to those airlines that voluntarily pledge aircraft and crews to the program.

Activation: The aircraft pledged are divided into three stages. The stages are activated incrementally to augment DOD organic lift capability, based on the severity of the situation.

Stage I: Committed Expansion. Activated by the Commander-in-Chief, Air Mobility Command.

Stage II: Defense Airlift Emergency. Activated by Secretary of Defense.

Stage III: National Emergency. Activated by Secretary of Defense after declaration of National Emergency by the President or Congress.

The current contribution of aircraft per stage can be seen in Appendix B, Tables 1 through 3, CRAF INFORMATION.

Capability: The capability offered by the airlines is subdivided into five segments:

- Long Range International (LRI)* aircraft.
- Short Range International (SRI) aircraft.
- Domestic aircraft.
- Alaskan aircraft.
- Aeromedical Evacuation (AE) capable aircraft.

* LRI is available in Stage I, all others in Stages II and III.

The CRAF Enhancement Program. In 1982 the military was authorized to award contracts to make wide-body passenger aircraft capable of carrying cargo in an emergency. The first contract was awarded to United Airlines to modify one DC-10. Modification of 19 Pan American B-747s followed in 1983 (one of those aircraft was destroyed in the crash of Pan Am Flight 103). Four more aircraft from other airlines were modified between 1986 and 1990. The total for all the modifications cost \$600 million, adding almost 1,700 tons of lift capability to CRAF.

Much of that capacity was lost when Pan American went bankrupt in January 1991. Evergreen Airlines now owns five of the aircraft and they are part of CRAF, but the other 18 were returned to various leasing agencies. The one positive note was when Delta agreed to commit 42 aircraft to CRAF to help offset the loss (Delta bought the rights to Pan American's European routes).

CRAF IN THE DESERT

Stage I. From the very start of DESERT SHIELD, civilian aircraft were used to help deploy U.S. forces. Airlines were eager to volunteer aircraft that would have otherwise been idle, or flying empty. But the requirements for airlift quickly exceeded both DOD organic and volunteered civilian capability. Thus, Stage I of CRAF was activated for the first time in its 38 year history, on 17 August 1990. Even after the activation, carriers continued to volunteer "spare" aircraft in the hope that it would not be necessary to activate CRAF II. However, it was necessary to activate CRAF Stage II on 17 January 1991.

Stage II. At first, just the cargo aircraft in Stage II were activated. Later, during the rapid redeployment of troops home, about half of the passenger aircraft in Stage II were used. Stage II was deactivated on 17 May 1991 and Stage I was deactivated on 24 May 1991.

During Operation DESERT SHIELD/DESERT STORM the airlines moved 700,000 passengers and over 120,000 tons of cargo. That

represents two-thirds of the passengers and one-fifth of the airlifted cargo, carried on over 5,200 missions.⁵² During the peak of the operation in February 1991, 71 cargo and 33 passenger aircraft were operating daily. CRAF participants were paid well; they received more than \$1.8 billion.⁵³ This helped some carriers that were suffering with the recession, but others believed they lost business to foreign competitors.

LESSONS LEARNED

I attended the after action meeting with the airline CEOs hosted by the Secretary of the Air Force and the Commander-in-Chief, USTRANSCOM (CINCTrans) in June 1991. The executives expressed many concerns about the program and their continued participation. They came armed with ideas for improvement.

Improvements. Their recommendations include: provision to compensate carriers for lost business as a result of activation; automatic Federal Aviation Agency waivers for crew duty time and certain aircraft maintenance;⁵⁴ insurance; liability; and lower crew ratio requirements. As a result of this meeting, CINCTrans directed AMC to develop more meaningful incentives for airline participation in CRAF.⁵⁵ AMC proposed the following improvements:

1. In the short term, link all DOD business to CRAF participation, then later, all government business.
2. Maintain a minimum level \$100 million of USTRANSCOM cargo business with the airlines.

3. Link Air Force small package and air freight business formerly carried by LOGAIR to CRAF participation.

4. Advocacy of tax reforms for airlines:

a. Modify the corporate Alternative Minimum Tax (AMT) to eliminate the penalty that the AMT imposes on investments in productive assets (pledged to CRAF).

b. Develop a type of Investment Tax Credit program tied to the carrier's initial purchase price on aircraft placed in the CRAF.

c. Seek legislation to provide various accelerated depreciation schedules for aircraft pledged to CRAF.

d. Allow use of military airfields for commercial purposes by carriers participating in CRAF .

e. Seek full funding of CRAF Enhancement Program to incorporate national defense features in CRAF long-range aircraft (includes electronic gear compatible with military systems).

5. Removal of disincentives. This includes revision to Title XIII insurance coverage, improvements to compensation methods for activated aircraft, and simplification of CRAF contracts.⁵⁶

These incentives will help, but I believe they are not enough to insure the viability of the airlines. The Government must do more. I offer recommendations in the following chapter.

CHAPTER SIX

■ A PRESCRIPTION TO HELP THE PATIENT

We've seen how the airline industry evolved and how that history led to the current financial crisis of the airlines. Within that context, we've explored the unique economic forces that affect the airlines, and some potential solutions. Discussion of two related issues followed: intermodalism and CRAF. That leads us to two recommendations.

First, the Government must work with the airlines and aerospace industry to create a more favorable economic environment for them. Second, the Government must sponsor development of an aircraft that will make long haul airlift of ISO containers economically attractive and militarily useful. The National Aerospace Plane is a noble goal, but if it costs megabucks to own and operate, can we realistically expect the airlines to use it? We would be better off concentrating our national energies on a National Heavy-Lift Plane. Here's the approach I recommend:

A Systematic Approach

First and foremost, no single agency of the Government should take unilateral action. At the Industrial College of the Armed Forces, we learned that the "Strategic Decision Making Environment" consists of many players. This truth also applies

to the airlines -- they do not exist in isolation. Any actions taken will affect the general population, private businesses, many Government departments, the airlines themselves, and the aerospace industry.

Step One. The Secretary of Defense should ask the President for the formal responsibility to form an interagency group to study improvements to the airline industry. Within this group there should be an executive steering committee, consisting of one senior representative from the Government, the airlines, and the aerospace industry.

Most of the work should be performed by working groups. These working groups would include appropriate representatives from each of the following agencies: Departments of Defense, Transportation, Commerce, and Labor, the Attorney General's office, legislative liaison, the Executive Office, the Air Transport Association, CRAF participants, and the aerospace industry. Working groups could be set up to evaluate and propose action in the areas of future aircraft design, tax reforms, regulation/Government involvement, and international and domestic competition and marketing.

The executive steering committee would provide policy guidance and keep the President and Congress informed of progress. This commission would add a balanced approach and validity to solutions for industry improvement. I would offer the following recommendations to such a body:

1. Aircraft Design. Design a dual purpose (military and civilian) cargo aircraft. Aerospace industry representatives could come prepared to discuss jumbo aircraft dedicated to airlift of ISO containers. They should also be prepared to discuss the viability of other new and innovative ideas such as the Wing-in-Ground effect aircraft. Aerocon, Inc. has a contract with the Defense Advanced Research Projects Agency to study such an aircraft's military applications.⁵⁷ They have proposed an aircraft that could carry 2,000 passengers and 1,200 tons of cargo at 400 knots. The Soviets successfully experimented with a smaller aircraft using this concept in the early 1970s. A joint military/civilian effort would have certain benefits:

- a. R&D costs shared by DOD, the airlines, and possibly the aerospace industry.
- b. A joint purchase by DOD and the airlines would mean a larger market, thus leveling production.
- c. A common support base would provide redundancy in an emergency, and make procurement and storage of spares cheaper for both airlines and DOD. If carried to the ultimate in cooperation, the airlines and DOD would share the support base in peacetime as well as war.

Any new aircraft should be a complement to the C-17, not just a bigger version. The airlines don't need, nor will they be willing to pay for, features like the capability to perform short takeoffs and landings.

2. **Tax Reform.** Implement the tax reforms reported in this paper, including: Reducing the excise tax, providing investment tax credits, and modifying the Alternative Minimum Tax.

3. **Regulation.** Adopt limited re-regulation along the lines proposed by Morten Beyer. This includes establishment of a regulatory body, participating in a rates and routes conference, establishing a common rate structure for all airlines, and protecting new airlines from predatory practices.

4. **Marketing.** There are two opportunities here. First, because of deregulation, management of the U.S. airlines is far stronger than their foreign competition which has been heavily subsidized (see Appendix A, Chart 4 for a comparison). We should take advantage of that strength and aggressively market both the passenger and cargo capabilities of our airlines overseas.

Step Two. Establish industrial centers that are served by all modes of transportation. Various themes of this idea have been proposed by the State of North Carolina and Ross Perot.⁵⁸ These intermodal airparks would offer businesses the opportunity to reduce manufacturing costs by collocating complementary industries and tying suppliers to producers to retailers to customers, through optimal Just-in-Time delivery. If these airparks were built and aggressively marketed, we could take advantage of the developing international airfreight market

from the Pacific-rim area and the emerging countries of Eastern Europe.

Even if these actions can not be accomplished, DOD can insure that the CRAF reforms proposed by USTRANSCOM are enacted.

CONCLUSION

Our government must have a coherent plan of involvement in the airline industry. We've been the world leader in regulation, deregulation, and military/civil cooperation. The airlines need help now, but they don't want or need a financial handout. They just need a level playing field. That is up to the Government.

An economic situation must be created that will allow our airlines to grow strong again and aggressively compete in the world market. A National Heavy-Lift Plane and a carefully structured business environment (i.e. non-restricting) will do that. If these initiatives are implemented properly, we will continue to have the best airline and aerospace industry in the world. More importantly, a critical element of our national security will remain strong and our military will have the ability to go anywhere, anytime in the defense of freedom, and get there in time to do the job well.

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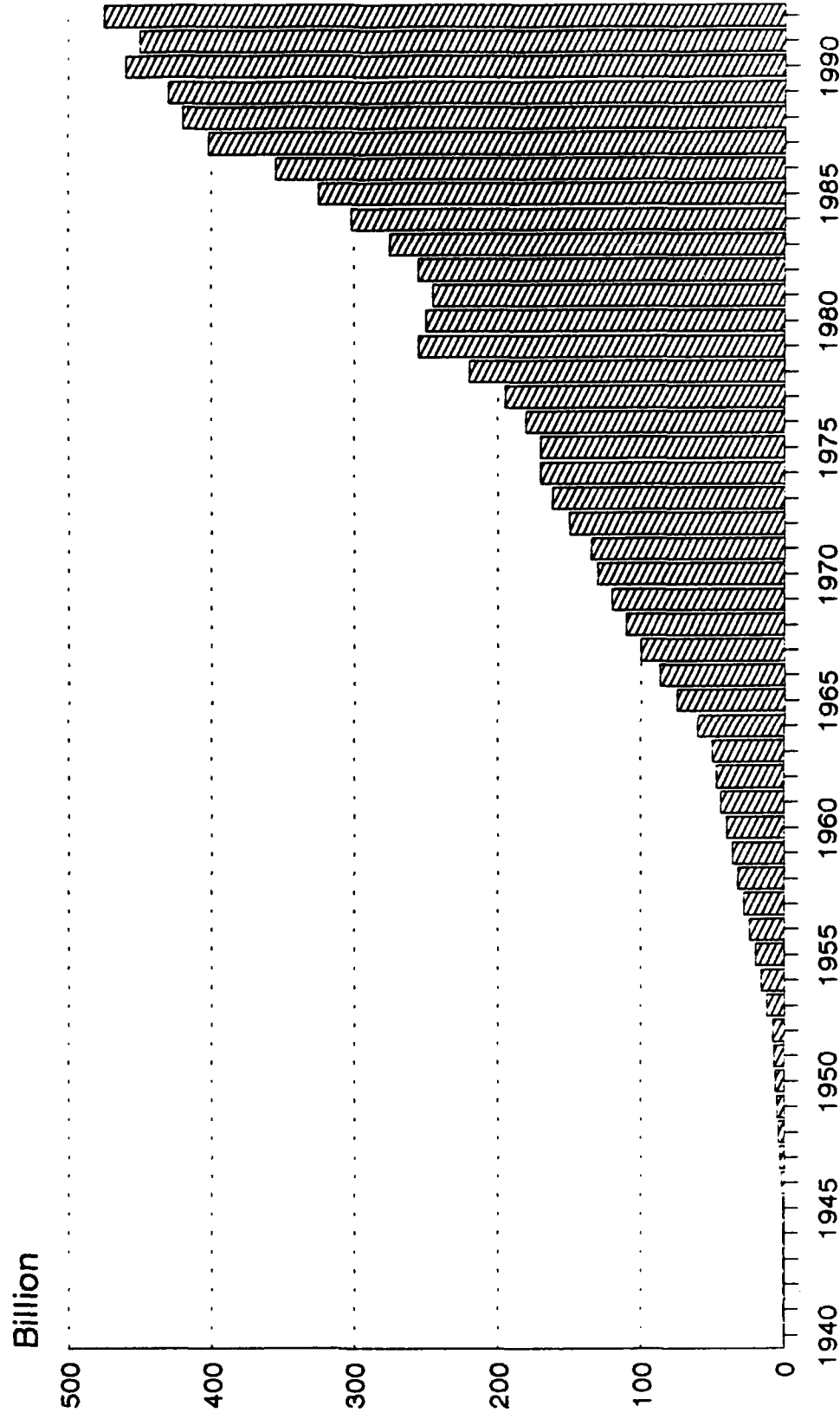
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Appendix A, Chart 1

THE HISTORY OF AIR TRANSPORT GROWTH

Revenue Passenger Miles, U.S. Scheduled Airlines



Source: David Swierenga (ATA) Speech to ICAF, 13 January 1993

Appendix A, Chart 2

THE CHICAGO AIR TRANSPORT AGREEMENT "FREEDOMS"

FIRST FREEDOM. The right of innocent transit over the territory of another nation. This law created under a bilateral agreement or under a multilateral agreement, was a "Transit Agreement," and was signed by most countries having international service.

SECOND FREEDOM. The right to a technical call in another's territory, with no commercial rights to embark or disembark traffic.

THIRD FREEDOM. The right to disembark on the territory of another state, traffic taken on in the state whose nationality the aircraft possesses. Example: Lufthansa takes on traffic of German origin and discharges German traffic in France.

FOURTH FREEDOM. The right to embark traffic destined for its own territory in the territory of another. Example: Lufthansa takes on French traffic destined for Germany. Lufthansa, here is a non-French air operator, entering into the local French commercial market to transact business for its own country.

FIFTH FREEDOM. The right to embark on disembark traffic to or form a third state territory in the territory of another. Example: Delta carrying traffic from France to Italy, on a sector from Paris to Rome.

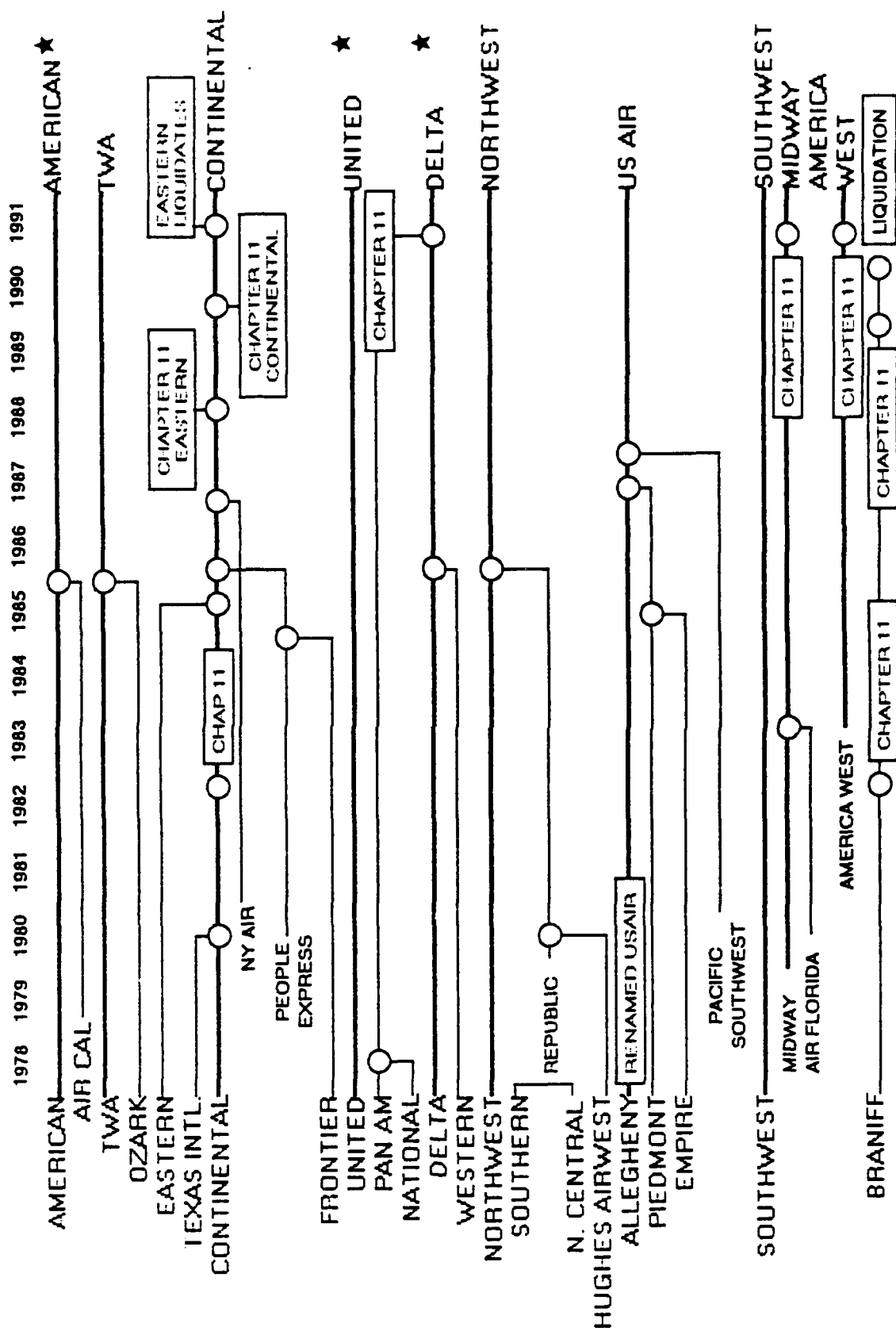
A special form of Fifth Freedom traffic has come to be recognized and the practice has grown to be called the Sixth Freedom:

SIXTH FREEDOM. The right to combine Fourth and Third Freedom traffic. Example. The right of American Airlines to sell a passenger or shipper a movement from Europe to the Far East via connecting flights in the US.

Source: John C. Cook, International Air Cargo Strategy, Philadelphia, Pennsylvania, 1973, pgs. 2-3.

Appendix A, Chart 3

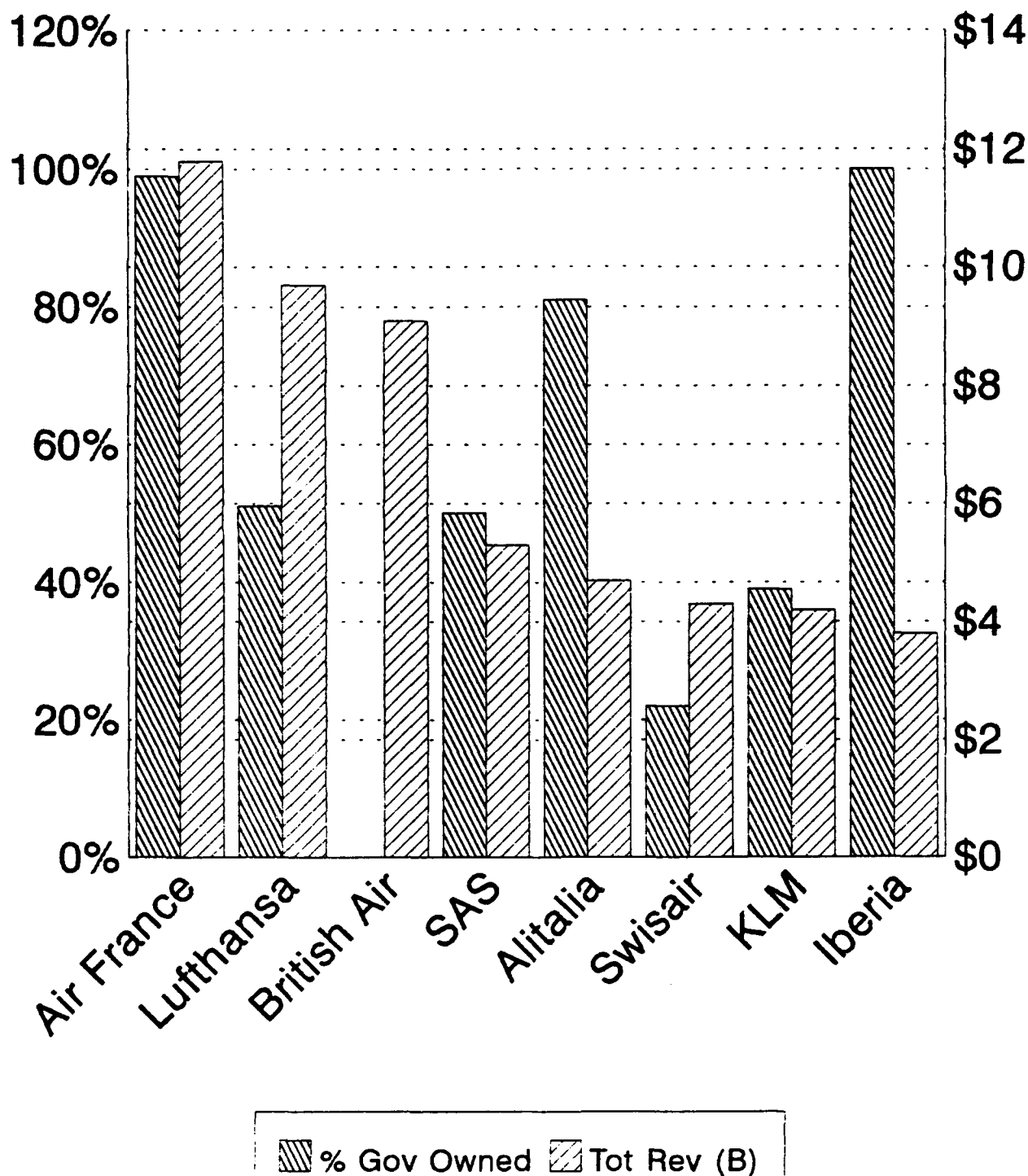
THE SHRINKING AIRLINE INDUSTRY*



*SOURCE: BUSINESS WEEK, FLY THE LUCRATIVE SKIES OF UNITED, AMERICAN, DELTA, OCT. 14, 1991, P. 91

Appendix A, Chart 4

FOREIGN AIRLINES



Source: Kenneth Labich, "Sky Wars", *Fortune*, November 2, 1992, p. 90.

APPENDIX B

CRAF INFORMATION

Table 1
CRAF COMPOSITION

Source: HQ AMC/XOC Background Paper, 11 Jan 93

	STAGE I	STAGE II	STAGE III
LRI Cargo	30	57	148
LRI Passenger	30	75	262
SRI Cargo		4	4
SRI Passenger		29	29
Domestic Cargo		7	7
Alaskan Cargo		12	12
Aeromedical		13	13
Total	60	197	475

Table 2
LONG RANGE PASSENGER AIRCRAFT

Source: HQ AMC/XOC Background Paper, 11 Jan 93

	TYPE AIRCRAFT	STAGE I	STAGE II	STAGE III
American	DC-10	0	0	1
American Trans Air	L-1011	2	4	10
	B-757	0	0	6
Buffalo Airways	DC-8	1	1	1
Continental	B-747	3	7	7
	DC-10	0	0	18
Delta	L-1011	11	7	22
	A-310	0	0	12
	B-767	3	3	3
Hawaiian	DC-8	2	3	6
	L-1011	0	0	4
Northwest	B-747	6	20	42
	DC-10	0	0	29
Rich International	DC-8	1	1	2
	L-1011	0	0	2
Tower Air	B-747	1	2	6
Trans World Airways (TWA)	B-747	2	4	9
	L-1011	0	0	3
United	B-747	7	22	55
	DC-10	0	0	22
World	DC-10	1	1	2
Total		30	75	262
Total (Oct 91)		18	55	256

Table 3
LONG RANGE CARGO AIRCRAFT

Source: HQ AMC/XOC Background Paper, 11 Jan 93

	TYPE AIRCRAFT	STAGE I	STAGE II	STAGE III
Air Transport International	DC-8	1	2	4
American International Airways	DC-8	0	5	13
	B-747	3	3	3
Arrow Air	DC-8	1	3	7
Buffalo Airways	B-707	1	1	2
Burlington Air Express	DC-8	1	1	2
Emery	DC-8	4	11	21
Evergreen	B-747	3	8	13
	DC-8	0	0	3
Federal Express	B-747	7	8	8
	DC-10	0	7	30
	MD-11	0	8	8
Florida West	B-707	1	2	4
Northwest	B-747	2	4	8
Southern Air	B-707	0	1	4
	DC-8	1	2	2
Tower Air	B-747	1	1	2
UPS	B-747	1	2	4
World	DC-10	2	5	9
Zantop	DC-8	1	1	1
Total		30	75	148
Total (Oct 91)		23	18	150